

WHAT IS CLAIMED IS:

1. A method for radiological examination of an organ comprising the steps of:
 - (a) injecting a contrast medium into the organ to be examined;
 - (b) emitting an X-ray beam in the direction of the organ;
 - (c) taking a plurality of digital images after the X-ray beam has crossed the organ; and
 - (d) calculating a representative image of the contrast produced in the tissues of the organ from the digital images.
2. The method according to claim 1 in which a first image is taken before injection of the contrast medium.
3. The method according to claim 1 in which at least one second image is taken after injection of the contrast medium.
4. The method according to claim 2 in which at least one second image is taken after injection of the contrast medium.
5. The method according to claim 3 in which at least one second image is taken during a phase of heightened attenuation due to the contrast medium.
6. The method according to claim 2 in which at least one second image is taken during a phase of heightened attenuation due to the contrast medium.
7. The method according to claim 3 in which at least one second image is taken after a phase of heightened attenuation due to the contrast medium.
8. The method according to claim 5 in which at least one second image is taken after a phase of heightened attenuation due to the contrast medium.

9. The method according to claim 3 in which the second images are equally distributed in time.

10. The method according to claim 5 in which the second images are equally distributed in time.

11. The method according to claim 6 in which the second images are equally distributed in time.

12. The method according to claim 7 in which the second images are equally distributed in time.

13. The method according to claim 3 in which the second images are taken at shorter intervals during the phase of heightened attenuation due to the contrast medium than after the phase.

14. The method according to claim 5 in which the second images are taken at shorter intervals during the phase of heightened attenuation due to the contrast medium than after the phase.

15. The method according to claim 6 in which the second images are taken at shorter intervals during the phase of heightened attenuation due to the contrast medium than after the phase.

16. The method according to claim 7 in which the second images are taken at shorter intervals during the phase of heightened attenuation due to the contrast medium than after the phase.

17. The method according to claim 3 in which a second image is taken at the end of the attenuation phase and a third image is taken a few minutes after the end of the phase.

18. The method according to claim 5 in which a second image is taken at the end of the attenuation phase and a third image is taken a few minutes after the end of the phase.

19. The method according claim 6 in which a second image is taken at the end of the attenuation phase and a third image is taken a few minutes after the end of the phase.

20. The method according claim 7 in which a second image is taken at the end of the attenuation phase and a third image is taken a few minutes after the end of the phase.

21. The method according to claim 3 in which the first image is subtracted from each of the second images.

22. The method according to claim 5 in which the first image is subtracted from each of the second images.

23. The method according to claim 6 in which the first image is subtracted from each of the second images.

24. The method according to claim 7 in which the first image is subtracted from each of the second images.

25. The method according to claim 21 in which the subtracted images are filtered spatially.

26. The method according to claim 27 in which the subtracted images are filtered spatially.

27. The method according to claim 28 in which the subtracted images are filtered spatially.

28. The method according to claim 29 in which the subtracted images are filtered spatially.

29. The method according to claim 1 in which the images are converted into thickness images.

30. The method according to claim 1 wherein the examination is mammography.

31. The method of claim 1 wherein the emitting X-ray beam has a maximum intensity for a frequency in the same order as a selected absorption line of the contrast medium.

32. The method of claim 3 wherein a gray level of the image is proportional to a quantity of the contrast medium per unit surface of the image.

33. The method according to claim 3 wherein the number of second images can range between 2 and 10.

34. The method according to claim 3 wherein a gray level of the image depends on the density of contrast medium in the organ.

35. A radiology apparatus comprising:

means for injection of a contrast medium into an organ to be examined;

means for emitting an energy beam;

means for receiving the energy beam and capable of sending an output of a digital image representative of the incident energy beam; and

means for processing capable of controlling the means for emitting and processing data from the means for receiving in order to calculate a representative image of the contrast produced in the tissues of the organ from the digital images.

36. The apparatus according to claim 35 wherein the means for processing is capable of controlling the means for injection of a contrast medium after the acquisition of a first image and before the acquisition of other images.

37. The apparatus according to claim 35 wherein the means for processing is capable of generating a representative image of the thickness of the contrast medium.

38. The apparatus according to claim 36 wherein the means for processing is capable of generating a representative image of the thickness of the contrast medium.

39. Computer program comprising means for providing a program code for applying the steps of the method according to any one of claims 1 to 40, when the program is working on a computer.

40. A storage medium capable of being read by a device reading means for providing program code which are stored therein and which are suitable for application of the steps of the method according to any one of claims 1 to 40, when the program is working on a computer.

41. A method of radiological examination of an organ comprising the steps of:

(a) emitting an X-ray beam in the direction of the organ to be examined;

(b) taking a first image of the organ;

(c) injecting a contrast medium into the organ;

(d) taking at least one second image of the organ after the injection of the contrast medium, wherein the second image is taken during or after or at the end of an attenuation phase of when the X-rays cross the organ;

(e) subtracting the first image from the second image; and

(f) calculating a curve of attenuation or a representative image of the contrast produced in the organ from the images.